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EXAMINER

PIZIALI, ANDREW T

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 08/23/2002

2/

Please find below and/or attached an Office communication concerning this application or proceeding.

TC-21

Office Action Summary

Applicati n No.

09/486,719

Applicant(s)

BOIRE ET AL.

Examiner

Andrew T Piziali

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-- Th MAILING DATE of this communication appears on th cov r sh et with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2002 .
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16,17,19-34,36-42,44-57 and 59-61 is/are rejected.
- 7) ☒ Claim(s) 18, 35, 43 and 58 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____ .

DETAILED ACTION

Response to Appeal Brief

1. In view of the appeal brief filed on 7/17/2002, PROSECUTION IS HEREBY REOPENED. The examiner has withdrawn the rejections, and the finality, of the Office Action dated 12/26/01. As a result of an updated search new art has been discovered and new grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

- (1) file a reply under 37 CFR 1.111 or,
- (2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16, 25, 27, 30-31, 39, 42, 50, 52, 55 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims merely setting forth physical characteristics desired in article, and not setting forth specific compositions which would meet such characteristics, are invalid as vague, indefinite, and functional since they cover any

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conceivable combination of ingredients either presently existing or which might be discovered in future and which would impart desired characteristics. *Ex parte SLOB*, 157 USPQ 172.

Regarding claim 16, the applicants' have failed to set forth specific compositions for the at least one electrically controllable system having variable optical and/or energy properties, the at least one coating for adjusting optical appearance conferred on the glazing by the system, the at least one coating having antireflection properties in the visible, and the at least one coating for attenuating/modifying the color of the glazing in reflection.

Regarding claims 25 and 50, the applicants' have failed to set forth a specific composition for the coating having hydrophilic/antimisting properties or having hydrophobic/anti-rain properties.

Regarding claims 27 and 52, the applicants' have failed to set forth a specific composition for the coating having photocatalytic/antifouling properties.

Regarding claims 30 and 55, the applicants' have failed to set forth a specific composition for the coating having electromagnetic screening properties.

Regarding claims 31 and 55, the applicants' have failed to set forth a specific composition for the carrier substrates.

Regarding claim 39, the applicants' have failed to set forth specific compositions for the at least one electrically controllable system having variable optical and/or energy properties, the at least one coating for adjusting optical appearance conferred on the glazing by the system and the at least one coating having antireflection properties in the visible.

Regarding claim 42, the applicants' have failed to set forth specific compositions for the at least one coating for attenuating/modifying the color of the glazing in reflection.

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4. Claims 17, 33, 39, 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The use of "type" is indefinite in a claim, *Ex parte Copenhagen*, 109 USPQ 118. Deletion of the term 'type' will obviate this rejection.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,777,779 to Hashimoto et al. (hereinafter referred to as Hashimoto) in view of US Patent No. 6,366,013 to Leenders et al. (hereinafter referred to as Leenders) and in view of 6,040,939 to Demiryont et al. (hereinafter referred to as Demiryont).

Regarding claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61, Hashimoto discloses an all-solid electrochromic device colored or colorless, corresponding to an applied electrical field (column 1, lines 5-18). Hashimoto discloses that an anti-reflection coating is provided on the surface of the electrochromic device (column 3, lines 1-7). Hashimoto discloses the use of an anti-reflection film composed of a plurality of different kinds of layers on the surface of an electrochromic device (column 3, lines 1-7), but does not mention a specific structure. Leenders discloses that antireflection coatings comprising a stack of alternatively high

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and low refractive indices (column 7, lines 38-60) are suitable for use in electrochromic devices (column 10, lines 60-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use one of the antireflection coatings of Leenders, in the electrochromic device of Hashimoto, because the antireflection coatings are suitable for electrochromic devices.

Hashimoto fails to mention at least one coating for attenuating/modifying the color of the glazing in reflection, but Demiryont discloses the use of a color control layer between the glass substrate and the antireflection coating of an electrochromic device (column 6, lines 15-22) to achieve both enhanced uniformity and the desired hue or color (column 7, lines 36-52 and column 8, line 15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a color control layer, as disclosed by Demiryont, in the electrochromic device of Hashimoto, because a color control layer allows for enhanced uniformity and the desired hue or color of the device, and it is desirable in some electrochromic device applications for the color of the device to be attenuated/modified.

Regarding claims 17, 30, 41 and 55, Leenders discloses that that a suitable antireflection coating is one comprising ITO (column 7, lines 46-67 and column 8, lines 1-10).

Regarding claims 19-20 and 44-45, Hashimoto discloses that the coating includes a layer of yttrium oxide (column 3, lines 48-55).

Regarding claims 21-22 and 46-47, Demiryont discloses that it would be within the ability of one skilled in the art to select a suitable material for the color control layer to achieve both enhanced uniformity and desired hue or color of the coated article (column 7, lines 40-50). Unless a showing of unexpected results can be demonstrated, it would have been obvious to one

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having ordinary skill in the art at the time the invention was made to make the color control layer from any suitable single or multiple layer film, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 23-24 and 48-49, Hashimoto discloses a first conductive layer that may comprise hydrated tantalum oxide or silicon oxide and a second conductive layer that may comprise tantalum oxide or silicon oxide (column 4, lines 1-8). Hashimoto discloses that the substrate may be glass or plastic (paragraph bridging columns 2 and 3).

Regarding claims 31-34, 40, 49 and 56-57 Hashimoto discloses that the electrically controllable system is a superposition of functional layers placed between two carrier substances of glass or plastic (column 2, lines 51-67 and column 6, lines 18-36) and discloses a protective resin film on the electrically controllable system (column 6, lines 19-30).

Regarding claim 38 and 61, Hashimoto discloses the use of an electrochromic system (column 1, lines 7-9), but does not mention the use of an electrically controllable system in the form of a liquid-crystal system. It would have been obvious to substitute a liquid-crystal system for the electrochromic system of Hashimoto, because both systems are functionally equivalent as electrically controllable systems having variable optical properties.

7. Claims 25-26 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Demiryont as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of US Patent No. 5,800,918 to Chartier.

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Hashimoto does not mention the use of a coating with hydrophobic properties. Chartier discloses the use of a hydrophobic-oleophobic coating, on a glass substrate, to give the glass substrate a non-wetting property (column 1, lines 48-62). The hydrophobic-oleophobic coating comprises at least one hydrolysable fluorinated alkylsilane (paragraph bridging columns 2 and 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the coating disclosed by Chartier, on the glazing of Hashimoto, because the coating gives the glazing a non-wetting surface property desirable in some electrochromic devices.

8. Claims 27-29 and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Demiryont as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of US Patent No. 6,632,121 to Chopin.

Hashimoto does not mention the use of a coating with photocatalytic properties, but Chopin discloses a substrate coating with photocatalytic properties comprising titanium dioxide at least partially crystallized in the anatase form (abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the photocatalytic coating of Chopin, to at least one of the external faces of Hashimoto glazing, because the coating would give the glazing anti-fouling properties desirable in some electrochromic devices.

9. Claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of 6,379,788 to Choi et al. (hereinafter referred to as Choi).

Regarding claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61, Hashimoto

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discloses an all-solid electrochromic device colored or colorless, corresponding to an applied electrical field (column 1, lines 5-18). Hashimoto discloses that an anti-reflection coating is provided on the surface of the electrochromic device (column 3, lines 1-7). Hashimoto discloses the use of an anti-reflection film composed of a plurality of different kinds of layers on the surface of an electrochromic device (column 3, lines 1-7), but does not mention a specific structure. Leenders discloses that antireflection coatings comprising a stack of alternatively high and low refractive indices (column 7, lines 38-60) are suitable for use in electrochromic devices (column 10, lines 60-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use one of the antireflection coatings of Leenders, in the electrochromic device of Hashimoto, because the antireflection coatings are suitable for electrochromic devices.

Hashimoto fails to mention at least one coating for attenuating/modifying the color of the glazing in reflection, but Choi discloses an antireflection film comprising a colored layer (column 8, lines 16-23) suitable for image display devices (column 7, lines 54-59). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a color layer, as disclosed by Choi, with the antireflection film of Hashimoto, because a color layer allows for a display device to be tinted which is desirable in some application since it is not possible to use tinted glass to provide the dark color needed in some flat screen tubes.

Regarding claims 17, 30, 41 and 55, Leenders discloses that that a suitable antireflection coating is one comprising ITO (column 7, lines 46-67 and column 8, lines 1-10).

Regarding claims 19-20 and 44-45, Hashimoto discloses that the coating includes a layer of yttrium oxide (column 3, lines 48-55).

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Regarding claims 21-22 and 46-47, absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the color control layer from any suitable material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 23-24 and 48-49, Hashimoto discloses a first conductive layer that may comprise hydrated tantalum oxide or silicon oxide and a second conductive layer that may comprise tantalum oxide or silicon oxide (column 4, lines 1-8). Hashimoto discloses that the substrate may be glass or plastic (paragraph bridging columns 2 and 3).

Regarding claims 31-34, 40, 49 and 56-57 Hashimoto discloses that the electrically controllable system is a superposition of functional layers placed between two carrier substances of glass or plastic (column 2, lines 51-67 and column 6, lines 18-36) and discloses a protective resin film on the electrically controllable system (column 6, lines 19-30).

Regarding claim 38 and 61, Hashimoto discloses the use of an electrochromic system (column 1, lines 7-9), but does not mention the use of an electrically controllable system in the form of a liquid-crystal system. It would have been obvious to substitute a liquid-crystal system for the electrochromic system of Hashimoto, because both systems are functionally equivalent as electrically controllable systems having variable optical properties.

10. Claims 25-26 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Choi as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of Chartier.

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Hashimoto does not mention the use of a coating with hydrophobic properties. Chartier discloses the use of a hydrophobic-oleophobic coating, on a glass substrate, to give the glass substrate a non-wetting property (column 1, lines 48-62). The hydrophobic-oleophobic coating comprises at least one hydrolysable fluorinated alkylsilane (paragraph bridging columns 2 and 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the coating disclosed by Chartier, on the glazing of Hashimoto, because the coating gives the glazing a non-wetting surface property desirable in some electrochromic devices.

11. Claims 27-29 and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Choi as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of Chopin.

Hashimoto does not mention the use of a coating with photocatalytic properties, but Chopin discloses a substrate coating with photocatalytic properties comprising titanium dioxide at least partially crystallized in the anatase form (abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the photocatalytic coating of Chopin, to at least one of the external faces of Hashimoto glazing, because the coating would give the glazing anti-fouling properties desirable in some electrochromic devices.

12. Claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of 5,780,160 to Allemand et al. (hereinafter referred to as Allemand).

Regarding claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61, Hashimoto

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discloses an all-solid electrochromic device colored or colorless, corresponding to an applied electrical field (column 1, lines 5-18). Hashimoto discloses that an anti-reflection coating is provided on the surface of the electrochromic device (column 3, lines 1-7). Hashimoto discloses the use of an anti-reflection film composed of a plurality of different kinds of layers on the surface of an electrochromic device (column 3, lines 1-7), but does not mention a specific structure. Leenders discloses that antireflection coatings comprising a stack of alternatively high and low refractive indices (column 7, lines 38-60) are suitable for use in electrochromic devices (column 10, lines 60-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use one of the antireflection coatings of Leenders, in the electrochromic device of Hashimoto, because the antireflection coatings are suitable for electrochromic devices.

Hashimoto fails to mention at least one coating for attenuating/modifying the color of the glazing in reflection, but Allemand discloses that the glass substrate of an electrochromic device may be coated with a color layer (column 2, lines 66-6 and column 7, lines 48-55). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a color layer, as disclosed by Allemand, with the antireflection film of Hashimoto, because a color layer allows for a display device to be tinted and it is desirable in some electrochromic device applications for the device to be tinted.

Regarding claims 17, 30, 41 and 55, Leenders discloses that that a suitable antireflection coating is one comprising ITO (column 7, lines 46-67 and column 8, lines 1-10).

Regarding claims 19-20 and 44-45, Hashimoto discloses that the coating includes a layer of yttrium oxide (column 3, lines 48-55).

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Regarding claims 21-22 and 46-47, Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the color control layer from any suitable material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 23-24 and 48-49, Hashimoto discloses a first conductive layer that may comprise hydrated tantalum oxide or silicon oxide and a second conductive layer that may comprise tantalum oxide or silicon oxide (column 4, lines 1-8). Hashimoto discloses that the substrate may be glass or plastic (paragraph bridging columns 2 and 3).

Regarding claims 31-34, 40, 49 and 56-57 Hashimoto discloses that the electrically controllable system is a superposition of functional layers placed between two carrier substances of glass or plastic (column 2, lines 51-67 and column 6, lines 18-36) and discloses a protective resin film on the electrically controllable system (column 6, lines 19-30).

Regarding claim 38 and 61, Hashimoto discloses the use of an electrochromic system (column 1, lines 7-9), but does not mention the use of an electrically controllable system in the form of a liquid-crystal system. It would have been obvious to substitute a liquid-crystal system for the electrochromic system of Hashimoto, because both systems are functionally equivalent as electrically controllable systems having variable optical properties.

13. Claims 25-26 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Allemand as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of Chartier.

Hashimoto does not mention the use of a coating with hydrophobic properties. Chartier discloses the use of a hydrophobic-oleophobic coating, on a glass substrate, to give the glass substrate a non-wetting property (column 1, lines 48-62). The hydrophobic-oleophobic coating comprises at least one hydrolysable fluorinated alkylsilane (paragraph bridging columns 2 and 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the coating disclosed by Chartier, on the glazing of Hashimoto, because the coating gives the glazing a non-wetting surface property desirable in some electrochromic devices.

14. Claims 27-29 and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Allemand as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of Chopin.

Hashimoto does not mention the use of a coating with photocatalytic properties, but Chopin discloses a substrate coating with photocatalytic properties comprising titanium dioxide at least partially crystallized in the anatase form (abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the photocatalytic coating of Chopin, to at least one of the external faces of Hashimoto glazing, because the coating would give the glazing anti-fouling properties desirable in some electrochromic devices.

15. Claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of 5,805,330 to Byker et al. (hereinafter referred to as Byker).

Regarding claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61, Hashimoto

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discloses an all-solid electrochromic device colored or colorless, corresponding to an applied electrical field (column 1, lines 5-18). Hashimoto discloses that an anti-reflection coating is provided on the surface of the electrochromic device (column 3, lines 1-7). Hashimoto discloses the use of an anti-reflection film composed of a plurality of different kinds of layers on the surface of an electrochromic device (column 3, lines 1-7), but does not mention a specific structure. Leenders discloses that antireflection coatings comprising a stack of alternatively high and low refractive indices (column 7, lines 38-60) are suitable for use in electrochromic devices (column 10, lines 60-64). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use one of the antireflection coatings of Leenders, in the electrochromic device of Hashimoto, because the antireflection coatings are suitable for electrochromic devices.

Hashimoto fails to mention at least one coating for attenuating/modifying the color of the glazing in reflection, but Byker discloses that the glass substrate of an electrochromic device (column 1, lines 15-21) may be coated with an antireflection layer and/or a color suppression layer (column 5, lines 61-67). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a color suppression layer, as disclosed by Byker, along side the antireflection film of Hashimoto, because a color suppression layer allows for color of an electrochromic device to be attenuated/modified and it is desirable in some electrochromic device applications for the color of the device to be attenuated/modified.

Regarding claims 17, 30, 41 and 55, Leenders discloses that that a suitable antireflection coating is one comprising ITO (column 7, lines 46-67 and column 8, lines 1-10).

Regarding claims 19-20 and 44-45, Hashimoto discloses that the coating includes a layer of yttrium oxide (column 3, lines 48-55).

Regarding claims 21-22 and 46-47, Absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the color control layer from any suitable material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 416.

Regarding claims 23-24 and 48-49, Hashimoto discloses a first conductive layer that may comprise hydrated tantalum oxide or silicon oxide and a second conductive layer that may comprise tantalum oxide or silicon oxide (column 4, lines 1-8). Hashimoto discloses that the substrate may be glass or plastic (paragraph bridging columns 2 and 3).

Regarding claims 31-34, 40, 49 and 56-57 Hashimoto discloses that the electrically controllable system is a superposition of functional layers placed between two carrier substances of glass or plastic (column 2, lines 51-67 and column 6, lines 18-36) and discloses a protective resin film on the electrically controllable system (column 6, lines 19-30).

Regarding claim 38 and 61, Hashimoto discloses the use of an electrochromic system (column 1, lines 7-9), but does not mention the use of an electrically controllable system in the form of a liquid-crystal system. It would have been obvious to substitute a liquid-crystal system for the electrochromic system of Hashimoto, because both systems are functionally equivalent as electrically controllable systems having variable optical properties.

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16. Claims 25-26 and 50-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Byker as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of Chartier.

Hashimoto does not mention the use of a coating with hydrophobic properties. Chartier discloses the use of a hydrophobic-oleophobic coating, on a glass substrate, to give the glass substrate a non-wetting property (column 1, lines 48-62). The hydrophobic-oleophobic coating comprises at least one hydrolysable fluorinated alkylsilane (paragraph bridging columns 2 and 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the coating disclosed by Chartier, on the glazing of Hashimoto, because the coating gives the glazing a non-wetting surface property desirable in some electrochromic devices.

17. Claims 27-29 and 52-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto in view of Leenders and in view of Byker as applied to claims 16-17, 19-24, 30-34, 36-42, 44-49, 55-57 and 59-61 above, and further in view of Chopin.

Hashimoto does not mention the use of a coating with photocatalytic properties, but Chopin discloses a substrate coating with photocatalytic properties comprising titanium dioxide at least partially crystallized in the anatase form (abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply the photocatalytic coating of Chopin, to at least one of the external faces of Hashimoto glazing, because the coating would give the glazing anti-fouling properties desirable in some electrochromic devices.

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Allowable Subject Matter

18. Claims 18, 35, 43 and 58 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art is Hashimoto in view of any one of Demiryont, Choi, Allemand, or Byker. The prior art fails to teach or suggest a color attenuating/modifying layer in contact with the electrically controllable system of Hashimoto, or between the electrically controllable system and the glass substrate of Hashimoto, with an antireflection layer deposited on at least one of the external faces of the glazing.

Conclusion

19. The following patent is cited to further show the state of the art with respect to alternating high and low refractive material antireflection films:

US Patent No. 5,871,843 to Yoneda et al.

(especially column 1, lines 25-30 and column 12, lines 62-67)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.



atp
August 18, 2002

Andrew T Piziali
Examiner
Art Unit 1775


DEBORAH JONES
SUPERVISORY PATENT EXAMINER